

### **Abstract**

An apparatus for monitoring a condition of a tire, such as tread belt separation, includes at least one sound monitoring device that is carried by a vehicle. The sound monitoring device produces a sound monitoring device output signal that is representative of the sound produced by at least one of the tires during rotation. A signal processing device is also present and includes a neural network. The signal processing device receives and processes the sound monitoring device output signal. A processing device output signal that is representative of a potential damage condition of the tire is produced. An indication device is present and receives the processing device output signal. The indication device informs a user of the vehicle that the tire is experiencing the potential damage condition.